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Lucent Technologies
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November 15, 1999

Ms. Magalie Salas
Office of the Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, DC 20554

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OFFICE OF THE SECRETARY

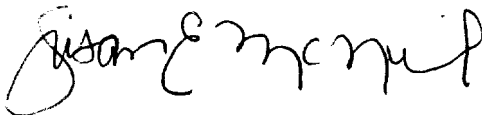
Re: WT Docket 99-168

Dear Ms. Salas:

Enclosed for filing, please find Lucent's *ex parte* filing in the above referenced docket.

If you have any questions, please do not hesitate to contact me at (202) 530-7019.

Regards,



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November 15, 1999

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Dear Dr. Newman:

Lucent respectfully submits this *ex parte* filing in the FCC's ongoing proceeding to draft service rules for the 36 MHz of spectrum in the 700 MHz band, scheduled for auction in 2000.

Consistent with the comments of other participants in this proceeding, Lucent believes that the 700 MHz band is suitable for both fixed and mobile applications. Given the propagation characteristics at these frequencies, however, Lucent believes that this band is especially well suited for mobile applications because it affords good building penetration and is not subject to loss from naturally occurring barriers such as foliage. In addition, the proximity of the 700 MHz band to the existing cellular frequencies may make this spectrum particularly appealing to current cellular licensees as they seek to meet growing consumer demand for high speed broadband services.

Notably, several operators (Air Touch, Bell Atlantic Mobile, SBC) have recommended the use of this spectrum for 3G services. Third generation systems will provide improved wireless voice and data communications with data rates of 144 kbps, 384 kbps, and 2 Mbps for the mobile, pedestrian and indoor environments respectively. These rates will support a wealth of data applications -- including internet access -- to meet growing consumer demand.

The 700 MHz band is an ideal choice for 3G services, not only for the technical reasons described above, but also because it is one of the few bands, within the range of spectrum that was reviewed by the ITU as possible candidate bands for the terrestrial component of IMT-2000, where reallocation decisions may be pending globally due to the transition from analogue to digital TV. The harmonization of spectrum worldwide, even in part, should help bring about the benefits of global roaming and manufacturing economies of scale. Indeed, several participants at the Commission's En Banc hearing on spectrum encouraged the Commission to actively pursue global coordination and harmonization in

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its future actions both internationally and domestically. As such, the Commission should be mindful of the need to coordinate with other administrations so that this will not be an allocation that is unique to the US market.

Recognizing the potential use of this spectrum for 3G, the Commission should prescribe a band plan that allocates a minimum of 2 x 5 MHz for each licensee, and preferably 2 x 9 MHz (as proposed by both Air Touch and SBC). The 5 MHz minimum bandwidth is necessary to support the broadest range of 3G technologies, as described in the Draft ITU-R Recommendation [IMT-RKEY] for 3G radio interfaces supporting both CDMA and TDMA (EDGE) technologies. The relevant section of that standard, identifying required minimum bandwidths, is attached. Further, the Commission should be aware that particular modes described in the ITU-R Recommendation can be accommodated in bandwidths consisting of multiples of 1.25 MHz. As an example, using a bandwidth of 1.25 MHz to support a data rate of 144 kbps and/or a bandwidth of 5 MHz for support of 384 kbps, a service provider has the flexibility to configure its system to best meet the voice and data needs of its customers.

This flexibility might also be adapted to efficiently satisfy the inherent asymmetric characteristics of data services which often require considerably higher rates in the forward or downlink direction relative to that needed on the reverse or uplink. Based upon the ITU-R Recommendation cited above, an operator could potentially configure its licensed spectrum with a narrowband reverse link and a wideband forward link.

Lucent notes that the configuration of this spectrum provides duplex spacing of only 30 MHz, compared to the 45 MHz provided in the cellular band and the 80 MHz assigned in PCS. Although this relatively narrow offset will add complexity to the design of necessary filters, especially those required in terminals, the difficulties should not be overly onerous.

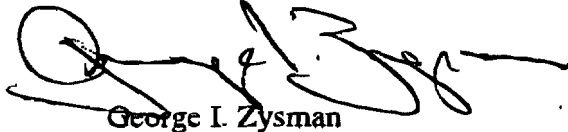
Lucent understands the Commission's interest in the potential application of this band for fixed services, and especially in its use for internet access in rural areas where the wireline infrastructure may not be available for support of the necessary data services. However, Lucent believes that this type of application, deployed over long distances, supporting lightly populated areas and necessarily large cell sites, would require sophisticated antenna arrangements of considerable size (3-4 meters). Alternatively, as Lucent previously has commented, this type of fixed service is better served at higher frequencies such as the 3.4 - 3.6 GHz band.

Finally, although the availability of this 36 MHz of spectrum will help speed the deployment of high speed data services, it is insufficient to satisfy the long term needs for the provision of third generation services. Indeed, the ITU-R has estimated that 160 MHz of additional spectrum for 3G services, beyond that already identified by the ITU for 3G use, and beyond that allocated for 2G services will be required by the year 2010. Accordingly, the Commission should continue to make available the additional spectrum necessary to meet the rapidly increasing demand for high speed, wireless data services. Moreover, relative to the 700 MHz band, the Commission should address the concerns

raised by the CTIA in its Petition for Reconsideration in the spectrum cap proceeding (WT Docket 98-205). The extension of the current rules to the 700 MHz band must be weighed against the impact of the spectrum cap on the demand for this spectrum and the desire for the rapid implementation of advanced services.

Lucent applauds the Commission's leadership in its ongoing efforts to facilitate the growth of broadband services and continued industry innovation. As the Commission moves forward in adopting a band plan and service rules for the 700 MHz band, Lucent encourages the FCC to adopt a flexible approach in order to promote the greatest mix of fixed and mobile services to best meet consumer demands.

Sincerely,

A handwritten signature in black ink, appearing to read "George I. Zysman", written over a horizontal line.

Attachment

cc: Tom Stanley
Marty Liebman
Doug Sicker

ATTACHMENT

The following table is taken from the ITU-R's Draft Recommendation [IMT.RKEY] (Section 3.3 of Table 1; pages 17, 18). The first bullet item listed under the heading "CDMA" is for the direct spread (DS) mode of CDMA which is based on ETSI's W-CDMA. The third bullet item is for the multicarrier (MC) mode of CDMA which is based on the US/TIA's cdma2000.

	NAME OF KEY CHARACTERISTIC	DESCRIPTION	LIST OF PROPOSED VALUES	
			MOBILE STATION VALUE	BASE STATION VALUE
3.3	Minimum operating bandwidth	<p>Minimum operating bandwidth is characterised by RF channel spacing and the minimum bandwidth for deployment.</p> <p>Note: This definition refers to the minimum bandwidth required to meet the minimum performance values in the 3 relevant test environments defined in M.1225 (i.e. 144kbps for Vehicular, 384kbps for Pedestrian, 2048kbps for Indoor).</p>	<p><u>CDMA</u></p> <p>One of the following:</p> <ul style="list-style-type: none"> Minimum operating bandwidth: FDD: 2x5 MHz TDD: 1x5 MHz Minimum channel spacing: 4.4MHz. Minimum operating bandwidth: TDD 1x1.6 MHz Minimum channel spacing: 1.6MHz. Minimum operating bandwidth: FDD 2x1.25 MHz for Vehicular 2x3.75 MHz for Pedestrian 2x7.5 MHz for Indoor TDD 1x1.25 MHz for Vehicular 1x3.75 MHz for Pedestrian 1x7.5 MHz for Indoor Minimum channel spacing: 1.25MHz 	<p><u>CDMA</u></p> <p>One of the following:</p> <ul style="list-style-type: none"> Minimum operating bandwidth: FDD: 2x5 MHz TDD: 1x5 MHz Minimum channel spacing: 4.4MHz. Minimum operating bandwidth: TDD 1x1.6 MHz Minimum channel spacing: 1.6 MHz. Minimum operating bandwidth: FDD 2x1.25 MHz for Vehicular 2x3.75 MHz for Pedestrian 2x7.5 MHz for Indoor TDD 1x1.25 MHz for Vehicular 1x3.75 MHz for Pedestrian 1x7.5 MHz for Indoor Minimum channel spacing: 1.25MHz

			<p><u>TDMA</u></p> <p>Minimum channel spacing: 200 kHz or 1.6 MHz or 1.728MHz</p> <p>Minimum operating bandwidth:</p> <ul style="list-style-type: none"> • 2 x 600 kHz for 200 kHz Channel spacing for Vehicular and Pedestrian environments • 2 x 1.6 MHz for 1.6 MHz Channel spacing for Indoor environment • Typical 5 to 20 MHz for 1.728 MHz Channel spacing for Indoor and Pedestrian environments 	<p><u>TDMA</u></p> <p>Minimum channel spacing: 200 kHz or 1.6 MHz or 1.728MHz</p> <p>Minimum operating bandwidth:</p> <ul style="list-style-type: none"> • 2 x 600 kHz for 200 kHz Channel spacing for Vehicular and Pedestrian environments • 2 x 1.6 MHz for 1.6 MHz Channel spacing for Indoor environment • Typical 5 to 20 MHz for 1.728 MHz Channel spacing for Indoor and Pedestrian environments
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